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WORLD TRENDS IN DEVELOPMENT OF RENEWABLE ENERGY SOURCES
МИРОВЫЕ ТЕНДЕНЦИИ В РАЗВИТИИ ВОЗОБНОВЛЯЕМЫХ ИСТОЧНИКОВ ЭНЕРГИИ

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Modern renewable energy technology dates from the second half of the 20th century, however the use of renewable resources for energy dates from when early humans learned to control use of fire.

The power of the sun has been used in ancient times which we can see at the oculus at the top of famous Pantheon in Rome, Italy, which was built in the first half of the 2nd century AD. Until the early 20th century when electrical lighting became the predominant interior lighting, sunlight was the only source of light besides candles, torches, oil lamps and after the industrial revolution in the second half of the 18th century - kerosene lamps.

Since ancient times wind was used for propelling ships and to turn windmills whilst rivers have turned water wheels for meliorating, the Romans even used geothermal water for heating. Until the middle of the 18th century and the discovery of fossil fuels, renewable sources were the only sources of energy available to man.

Excessive use of fossil fuels has caused global climate change which has became obvious in the last few decades and has forced people and governments throughout the world to seriously reconsider the replacement of fossil fuels with renewable energy sources.

Renewable energy is energy which comes from natural resources such as sunlight, wind, rain, tides, and geothermal heat, which are renewable (naturally replenished). In 2008, about 19% of global final energy consumption came from renewables, with 13% coming from traditional biomass, which is mainly used for heating, and 3.2% from hydroelectricity. New renewables (small hydro, modern biomass, wind, solar, geothermal, and biofuels) accounted for another 2.7% and are growing very rapidly. The share of renewables in electricity generation is around 18%, with 15% of global electricity coming from hydroelectricity and 3% from new renewables.

Wind power is growing at the rate of 30% annually, with a worldwide installed capacity of 158 gigawatts (GW) in 2009 and is widely used in Europe, Asia, and the United States. Solar thermal power stations operate in the USA and Spain, and the largest of these is the 354 megawatt (MW) power plant in the Mojave Desert.

The world's largest geothermal power installation is The Geysers in California, with a rated capacity of 750 MW. Brazil has one of the largest renewable energy programs in the world, involving production of ethanol fuel from sugar cane, and ethanol now provides 18% of the country's automotive fuel. Ethanol fuel is also widely available in the USA.

While many renewable energy projects are large-scale, renewable technologies are also suited to rural and remote areas, where energy is often crucial in human development. Globally, an estimated 3 million households get power from small solar PV systems. Micro-hydro systems configured into village-scale or county-scale mini-grids serve many areas. More than 30 million rural households get lighting and cooking from biogas. Biomass cookstoves are used by 160 million households.

Energy is a basic human need. Without energy, everything would come to a standstill. A necessary factor in fostering human development and economic growth is a secure, affordable, reliable, clean, and sustainable energy supply. Today we face monumental challenges: global warming, the waning of natural resources, explosions in population growth, increasing energy demand, rising energy prices, and unequal distribution of energy sources. All of these factors contribute to the urgent need to transform the energy sector - which primarily relies on fossil fuels - to one that uses renewable energies and energy efficient measures.

Renewable energy is one of the key solutions to the current challenges facing the world’s energy future. Many countries already foster the production and use of renewable energy through different approaches on a political and economic level because they recognize the many benefits renewable energy provides. The current use of renewable energy, however, is still limited in spite of its vast potential. The obstacles are manifold and include: lengthy permitting procedures, import tariffs and technical barriers, insecure financing of renewable

energy projects, and insufficient awareness of the opportunities for renewable energy.

Recognising the huge potential of renewable energy, IRENA's Member States have joined together to establish an international organisation dedicated to facilitating the rapid development and deployment of renewable energy worldwide.

IRENA believes that renewable energy use must, and will increase dramatically in the coming years, because of its key role in enhancing energy security, reducing greenhouse gas emissions and mitigating climate change, alleviating energy poverty, supporting sustainable development, and boosting economic growth.

IRENA's vision is for a world where modern and effective renewable energy is accessible in all countries and becomes one of the major energy sources. For a world, where renewable energy technologies are widely deployed and are seen as one of the key energy solutions of the future by all countries.

Mandated by governments worldwide, IRENA's mission is to promote the widespread and increased adoption and sustainable use of all forms of renewable energy. IRENA's Member States pledge to advance renewables in their own national policies and programs, and to promote, both domestically and through international cooperation, the transition to a sustainable and secure energy supply.

IRENA's work is guided by the principles of international cooperation between Member States and related stakeholders, accessibility of all the Agency's services, bearing in mind the special needs of developing countries, striving for excellence in all the services produced by the organization, efficiency and transparency in delivering the organisation's services, and adding value to what is already being done by existing organisations in the field of renewable energy.

IRENA aims to become the leading international centre of excellence for renewable energy and a platform for exchange and development of renewable energy knowledge. Once achieved, IRENA will become the global voice for renewable energy. IRENA will facilitate access to all relevant renewable energy information, including technical data, economic data and renewable resource potential data. IRENA will share experiences on best practices and lessons learned regarding policy frameworks, capacity-building projects, available finance mechanisms and renewable energy related energy efficiency measures.